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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,333	06/10/2005	Andrei Mijiritskii	NL030118	1598

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EXAMINER	
SHEN, KEZHEN	
ART UNIT	PAPER NUMBER
2627	
MAIL DATE	DELIVERY MODE
12/22/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,333	MIJIRITSKII, ANDREI	
	Examiner	Art Unit	
	KEZHEN SHEN	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/26/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomie US 6,251,492 B1. and further in view of Ishikawa et al. 5,214,636 and Challener, IV 5,620,792.

Regarding claim 1, Tomie teaches a rewritable optical record carrier (Fig. 1, Col 3 Lines 30-48) comprising a recording stack of layers in the following order**:** a first dielectric layer (6 of Fig. 1, Col 3 Lines 30-48) having a thickness at a first amorphous reflection minimum; a recording layer comprising a phase-change recording material (5 of Fig. 1, Col 3 Lines 30-48); a second dielectric layer (4 of Fig. 1, Col 3 Lines 30-48);

and a mirror layer deposited onto the second dielectric layer side of the recording stack (3 of Fig. 1, Col 3 Lines 30-48), wherein a thermal barrier layer (2 of Fig. 1, Col 3 Lines 30-48) is arranged adjacent to said first dielectric layer opposite the mirror layer (Fig. 1, Col 4 Lines 47-51, Col 5 Lines 51-54 the first dielectric layer and the thermal barrier layer can be one and the same and made of the same material ZnS-SiO_2) to reduce heat dissipation emanating from the recording layer (Col 4 Lines 22-42) and passing through the first dielectric layer (Col 4 Lines 15-42 the first dielectric layer is also), and wherein light entering the stack penetrates the thermal barrier layer, the first and second dielectric layers and the recording layers (Col 1 Lines 5-11). Tomie fails to teach the first dielectric layer having a thickness at a first amorphous reflection minimum and wherein the major component of the thermal barrier layer is different from the components or mixtures of the first dielectric layer materials.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light (Fig. 1-3, Col 3 Line 60-Col 5 Line 40). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with a thickness with a first amorphous reflection minimum as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63). Tomie and Ishikawa et al. both fail to teach wherein the major component of the thermal barrier layer is different from the components or mixtures of the first dielectric layer materials.

However, Challener, IV does. Challener, IV teaches the dielectric layer to function as a thermal barrier layer (Col 3 Lines 25 – 33) and to include two sublayers (16 and 18 of Fig. 1, Col 3 Lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of the rewritable optical carrier with an dielectric layer which functions as a thermal barrier layer as taught Tomie and Ishikawa et al. with the teachings of separating the dielectric layer into two sublayers as taught by Challener, IV, as a whole, for the benefit of fine tuning the dielectric properities for optimum performance (Col 1 Line 60 – Col 2 Line 13).

Regarding claim 2, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein the rewritable optical record carrier further comprises a substrate carrying said stack of layers having said thermal barrier layer arranged between said first dielectric layer and said substrate (1, 2 and 4 of Fig. 1, Col 3 Lines 30-48).

Regarding claim 3, Tomie teaches the rewritable optical record carrier as claimed in claim 2, wherein the refraction index of said thermal barrier layer is close to the refraction index of said substrate (Col 4 Lines 9-11, Col 4 Lines 46-50 the refractive index of SiO_2 is around 1.5 and the refractive index of Polycarbonate is around 1.58).

Regarding claim 4, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein the rewritable optical record carrier further comprises a cover layer (1 of Fig. 1, Col 3 Lines 30-48 the substrate is the cover layer, in this case there would be another layer covering the second dielectric layer, Col 5 Line 65- Col 6 Line 5) attached to said thermal barrier layer.

Regarding claim 5, Tomie teaches the rewritable optical record carrier as claimed in claim 4, wherein the refraction index of said thermal barrier layer is close to the refraction index of said cover layer (Col 4 Lines 9-11, Col 4 Lines 46-50 the refractive index of SiO_2 is around 1.5 and the refractive index of Polycarbonate is around 1.58).

Regarding claim 6, Tomie teaches the rewritable optical record carrier as claimed in claim 2, wherein Said substrate material is polycarbonate or PMMA (Col 1 Lines 51-58, Col 4 Lines 9-11).

Regarding claim 7, Tomie teaches the rewritable optical record carrier as claimed in claim 4, wherein said cover layer material is polycarbonate or transparent polymer resin (Col 1 Lines 51-58, Col 4 Lines 9-11).

Regarding claim 8, Tomie teaches the rewritable optical record carrier claimed in claim 1, wherein said thermal barrier layer material comprises SiO_2 or Al_2O_3 as a major component (Col 4 Lines 46-51).

Regarding claim 9, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein said first and second dielectric layer materials comprise one of the following components or a mixture thereof: ZnS, SiO_2, Si_3N_4, Al_2O_3 or Ta_2O_5 (Col 5 Lines 49-54).

Regarding claim 10, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein said phase-change recording material comprises a mixture of Ge, In, Sb, and Te (Col 5 Lines 20-25).

Regarding claim 11, Tomie fails to teach the rewritable optical record carrier as claimed in claim 1, wherein said first dielectric layer thickness d_1 can be represented as:

$d_1 = (m*\lambda)/(2*n)$

where m is an integer, λ denotes the wavelength of the laser light, and n is the refractive index of the first dielectric layer material.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light which satisfies the equation $n_k d_k = \lambda/2^m$ (m = 1,2,3 …) where n_k is the refractive index of the kth dielectric film, d_k is the thickness of the kth dielectric film and λ is the wavelength of the light beam (Fig. 1-3, Col 4 Line 7-Col 4 Line 51). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with a specific equation as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63, Col 4 Lines 38-51).

Regarding claim 12, Tomie fails to teach the rewritable optical record carrier as claimed in claim 11, wherein said amorphous and a crystalline reflection has minimum and maximum levels at certain d_1 values.

However, Ishikawa et al. does. Ishikawa et al. teach the optical record carrier to have minimum and maximum reflection levels (Figs. 2 and 3, Col 5 Lines 1 – 23). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with minimum and maximum reflection levels as

taught by Ishikawa et al. as a whole to include minimum and maximum reflection levels for the benefit of allowing variable dielectric thicknesses for different purposes.

Regarding claim 13, Tomie fails to teach the rewritable optical record carrier as claimed in claim 12, wherein said amorphous reflection has a minimum level at a d_1 value when m=1.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light which satisfies the equation $n_k d_k = \lambda/2^m$ (m = 1,2,3 …) where n_k is the refractive index of the kth dielectric film, d_k is the thickness of the kth dielectric film and λ is the wavelength of the light beam (Fig. 1-3, Col 4 Line 7-Col 4 Line 51). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with a specific equation as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63, Col 4 Lines 38-51).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEZHEN SHEN whose telephone number is (571)270-1815. The examiner can normally be reached on 10am-6pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571)272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kezhen Shen/
Examiner, Art Unit 2627

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627